

as, lineal lanceoladas. Flores amarillas que cambian a anaranjado."

PAEPALANTHUS DICHOTOMUS var. *BRASILIENSIS* Moldenke, var. nov.

Haec varietas a forma typica speciei foliis 3--5 mm. longis 1 mm. latis glabris nitidisque ad apicem acutissimis et pedunculis abbreviatis 4--10 mm. longis recedit.

This variety differs from the typical form of the species in having its rosulate leaves only 3--5 mm. long and 1 mm. wide, thick in texture, stiffly erect, glabrous and shiny, very acute at the apex, and the peduncles much abbreviated, only 4--10 mm. long.

The type of the variety was collected by Gert Hatschbach (no. 27425) along the road near Salto da Divisa, in the municipality of Diamantina, Minas Gerais, Brazil, at 1300 meters altitude, on September 7, 1971, and is deposited in my personal herbarium at Plainfield, New Jersey.

ADDITIONAL NOTES ON THE GENUS VERBENA. X

Harold N. Moldenke

VERBENA [Dorst.] L.

Additional & emended bibliography: Gattinger, *Med. Pl. Tenn.* 63--64. 1894; Reiche & Phil., *Fl. Chil.* 5: 271--298, 300, 302, 304, & 463. 1910; Graves, Eames, Bissell, Andrews, Harger, & Weatherby, *Bull. Conn. Geol. & Nat. Hist. Surv.* 14: [Cat. Flow. Pl.] 330--332. 1910; Harger, *Bull. Conn. Geol. & Nat. Hist. Surv.* 48: 74. 1930; Gathercoal, *Checklist Nat. & Introd. Drug Pl.* [22]. 1942; Beston, *Herbs & Earth* 60--62, 131, & 133. 1950; Goossens, *Suid-Afrik. Flom. Pl.* 185. 1953; Fogg, *Weeds Lawn & Gard.* 141. 1956; Haramaki, *Weed Abstr.* 14: 256. 1965; Ferrándiz, *Guia Med. Veg.* 388--389. 1967; Tawada, *Okinawa Seibutsugakki* [Biol. Mag. Okinawa] 4 (6): 36. 1968; McCarthy & Morrow, *Proc. 24th N. Cent. Weed Control Conf.* 64. 1969; Soukup, *Raymondiana* 3: 26, 57, & 91. 1970; Graf, *Exot. Pl. Man.*, ed. 1, 320, 378, 410, & 411. 1970; Bright of America, *Summersville, W. Va.*, 25.GC.70 *Petunias & Verbenas.* 1970; Mayall, *Weed Abstr.* 20: 321. 1971; Moldenke, *Fifth Summ.* 1: 6, 10, 14--25, 27, 30--54, 57--66, 74--78, 81, 82, 84--86, 89, 91, 92, 98, 99, 101, 104--106, 109, 111, 120, 128, 137, 138, 143, 144, 177--179, 184, 187--190, 192--194, 200--211, 213--215, 222, 231, 234, 238, 241, 246, 248, 252, 255, 257, 262, 264--267, 269--271, 278, 279, 281, 284, 290, 292, 294, 293, 303, 306, 308, 311--313, 318, 328, 337, 341, 343, 344, 349--353, 369--373, 375, 376, 389--391, 396, 397, 400, 402, 421, 468, 471, & 473 (1971) and 2: 491, 492, 520--523, 525--527, 531, 534, 548, 558, 559, 568, 569, 575, 593, 594, 618--621, 645, 648--710, 736, 738, 741, 742, 744, 752, 766, 767, 769,

773, 774, 776, 781--785, 787, 780, 791--794, 912--922, 967--970, & 973. 1971; Moldenke, *Phytologia* 22: 456--501. 506--508, 510, & 512. 1972.

VERBENA AMBROSIFOLIA Rydb.

Additional bibliography: Moldenke, *Phytologia* 22: 459--462, 471, 473, 485, & 497. 1972.

VERBENA ARAUCANA R. A. Phil.

Additional & emended bibliography: Reiche & Phil., *Fl. Chil.* 5: 289 & 290. 1910; Moldenke, *Phytologia* 22: 463 & 464. 1972.

VERBENA ARISTIGERA S. Moore

Additional bibliography: Moldenke, *Phytologia* 22: 463--464. 1972.

The corollas of this plant are described as "lilac" on Krapovickas & Cristóbal 16015.

Additional citations: ARGENTINA: Misiones: Krapovickas & Cristóbal 16015 (Ft).

VERBENA ATACAMENSIS Reiche

Additional & emended bibliography: Reiche & Phil., *Fl. Chil.* 5: 289 & 291--292. 1910; Moldenke, *Phytologia* 22: 464. 1972.

VERBENA BERTERII (Meisn.) Schau.

Additional bibliography: Reiche & Phil., *Fl. Chil.* 5: 287, 289, 293, & 294. 1910; Moldenke, *Phytologia* 22: 466. 1972.

VERBENA BONARIENSIS L.

Additional & emended bibliography: Reiche & Phil., *Fl. Chil.* 5: 283 & 284. 1910; Moldenke, *Phytologia* 22: 474--479. 1972.

VERBENA BRASILIENSIS Vell.

Additional bibliography: Rickett, *Wild Fls. U. S.* 3 (2): [367], pl. 111 (1969) and 5 (2): [455], pl. 152. 1971; Moldenke, *Phytologia* 22: 478 & 488--490. 1972.

Additional illustrations: Rickett, *Wild Fls. U. S.* 3 (2): [367], pl. 111 (in color) [as V. litoralis] (1969) and 5 (2): [455], pl. 152 (in color) [as V. litoralis]. 1971.

Rickett (1969, 1971), in the color illustration which he uses twice, purports to depict V. bonariensis L. and V. litoralis H.B.K. -- the front plant in the photograph is obviously V. bonariensis, but the rear plant is certainly not V. litoralis! A far more likely identification for it is V. brasiliensis.

VERBENA CABRERAE Moldenke

Additional synonymy: Glandularia cabreræ (Mold.) Tronc., in herb.

Additional bibliography: Moldenke, *Phytologia* 22: 490. 1972.

Krapovickas and his associates found this plant growing on "barrancas de arroyo" and describe the corollas as "violet".

Additional citations: BOLIVIA: Tarija: Krapovickas, Mroginski, & Fernández 19272 (Ft).

VERBENA CANADENSIS (L.) Britton

Additional & emended bibliography: Graves, Eames, Bissell, Andrews, Harger, & Weatherby, Bull. Conn. Geol. & Nat. Hist. Surv. 11: [Cat. Flow. Pl.] 331--332. 1910; Winge, Proc. Linn. Soc. Lond. 150: 236. 1938; Moldenke, Phytologia 22: 492--498. 1972.

VERBENA CAROLINA L.

Additional synonymy: Verbena caroliniana Anderss. apud B. L. Robinson, Proc. Am. Acad. 38: 197, in syn. 1902.

Additional & emended bibliography: Crantz, Inst. Rei Herb. 1: 573. 1766; [Retz.], Nom. Bot. 11. 1772; J. F. Gmel. in L., Syst. Nat., ed. 13, pr. 1, 2: 42 (1789) and ed. 13, pr. 2, 2: 42. 1796; Pers., Sp. Pl. 3: 347. 1819; Hook., Trans. Linn. Soc. Lond. Bot. 20: 195. 1847; A. Wood, Class-book, [ed. 42], pr. 1, 537 (1861), [ed. 42], pr. 2, 537 (1863), [ed. 42], pr. 3, 537 (1865), [ed. 42], pr. 4, 537 (1867), [ed. 42], pr. 5, 537 (1868), [ed. 42], pr. 6, 537 (1869), and [ed. 42], pr. 7, 537. 1870; A. Wood, Am. Bot. & Flor., ed. 1, pr. 1, 236 (1870), ed. 1, pr. 2, 236 (1871), and ed. 1, pr. 3, 236. 1872; A. Wood, Class-book, [ed. 42], pr. 8, 537. 1872; A. Wood, Am. Bot. & Flor., ed. 1, pr. 4, 236 (1873), ed. 1, pr. 5, 236 (1874), and ed. 1, pr. 6, 236. 1875; A. Wood, Class-book, [ed. 42], pr. 9, 537 (1876) and [ed. 42], pr. 10, 537. 1881; O. R. Willis in A. Wood, Am. Bot. & Flor., ed. 2, 236. 1889; Solered., Syst. Anat. Dicot. 713. 1899; B. L. Robinson, Proc. Am. Acad. 38: 196--197. 1902; D. H. Scott in Solered., Syst. Anat. Dicot., transl. Boodle & Fritsch, 1: 631. 1908; Lowe, Miss. State Geol. Surv. Bull. 17: 236. 1921; Savage, Cat. Linn. Herb. Lond. 4. 1945; Howell & McClintock in Kearney & Peebles, Ariz. Fl., ed. 2, 726 & 727. 1960; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 615, 618, & 624. 1960; Hocking, Excerpt. Bot. A.6: 91 (1963) and A.7: 206 & 455. 1964; Rzedowski & McVaugh, Contrib. Univ. Mich. Herb. 9: 65 & 107. 1966; W. C. Grimm, Recog. Flow. Wild Pl. 228 & 229. 1968; Moldenke, Biol. Abstr. 49: 3252. 1968; Moldenke, Phytologia 16: 186 & 340--341. 1968; Moldenke, Résumé Suppl. 16: 2 & 28. 1968; Hocking, Excerpt. Bot. A.13: 570 & 571 (1968) and A. 14: 206. 1969; Moldenke, Biol. Abstr. 50: 418. 1969; D'Arcy, Taxon 19: 556. 1970; Gibson, Fieldiana Bot. 24 (9): 230--232, fig. 46. 1970; Wiggins & Porter, Fl. Galáp. Isls. 997. 1971; Moldenke in Wiggins & Porter, Fl. Galáp. Isls. 508. 1971; Moldenke, Fifth Summ. 1: 51, 63, 75, 81, 84, 85, & 370 (1971) and 2: 654, 660, 661, 673, 684, 690, 701, 706, 709, 787, 793, 913, & 973. 1971; Moldenke, Phytologia 22: 501--502. 1972.

Additional illustrations: Gibson, Fieldiana Bot. 24 (9): 231, fig. 46. 1970.

Recent collectors have found this plant growing along streams, along paths in open disturbed secondgrowth thickets, and along dry open or dry grassy roadsides, on railroad embankments and grassy valley floors, in matorral, deciduous tropical woods, dense

forests, small barrancas, maize fields, disturbed oak woods, pine-woods, pine-fir woods, and pine-oak woods, often in rocky soil. It has been collected in fruit in March (in addition to the months previously reported). Additional common names reported for it are "chichavac" and "dorí". Pennington reports that it is an excellent pasturage plant and that a medicinal tea is made from it in Sonora to cure headaches.

The corollas are described as "lilac" on Flores Crespo 293, "violet" on Franco R. s.n. [20.VIII.1967], "pale-violet" on Roe, Roe, & Mori 678, "blue" on Breedlove 14430a, Jiménez R. 151, and S. López 89, "light-blue" on Rowell 3061, "pale-blue" on Flores Crespo 45 and Breedlove & Kawahara 16887, and "purple" on Bautista s.n. [13/VIII/1967], Farías 83, Martínez-Calderón 1765, R. Runyon 884, and J. Rzedowski 1135, 1226, 20284, & 20988.

Breedlove & Kawahara found the plant growing on the wooded banks of streams with Alnus sp., Quercus spp., Padus serotina, and Pinus engelmanni. In Guanajuato McVaugh found it "on steep rocky (rhyolitic) mountainsides, weedy, not much seen", but in Tamaulipas it is reported by Runyon as "common on tops of mountains in fertile soils". Rzedowski encountered it in "charcos cercanos a la carretera", González Quintero in "ladera caliza con vegetación de Cephalocereus", and Jiménez R. on "ladera con vegetación de matorral xerófilo".

Gibson (1970) states that "This has been reported from Guatemala as V. ehrenbergiana Schauer". Macbride (1960) cites Pennell 14770 from Lima and Soukup 3182 from Junín, Peru, but these are probably misidentifications. The "Verbena Carolina L." of Lowe (1921) is Stylodon carneus (Medic.) Moldenke, as is also the "Verbena caroliniana, Carolina verbena" described by Grimm (1968).

Savage (1945) lists as the type of V. carolina sheet 17 under genus 35, Verbena, where it is identified as "Verbena "carolin." with the comment "[cf. Jacq. list 1761. n. 8. det. Jacq: an carolina]".

Franco R. s.n. [20.VIII.1967], García Romero s.n. [11.VIII. 1968], and Márquez s.n. [23/VII/1962] are mixtures with V. menthaefolia Benth., while Pennington 215 is a mixture with V. pincetorum Moldenke.

Charles Darwin, in the beginning of October, 1835, on the famous voyage of the "Beagle", collected two specimens of vervain on James Island in the Galápagos group. One of these was identified by Hooker on the label as "Verbena polystachya H.B.K. var.?" Later (1847) he published this as "V. polystachya H.B.K. var. foliis incis segmentis grossè serratis" and made this comment: "Sprengel unites this species with V. urticaefolia, to which our plant bears a close affinity; but the margins of the leaves in the present are far more deeply cut, and the segments again coarsely serrated. They may very possibly be mere variations of one species." Andersson (1859) misquoted Hooker's varietal description

and reduced it to "V. caroliniana Linn." Robinson (1902) and Stewart (1911) adopted the name, V. carolina L., for the plant of Darwin. There is no evidence that any of these later workers actually examined Darwin's specimen, although an unknown hand changed the determination on it to "V. urticifolia L.?" and then to "V. carolina L." Examination of the original specimen has shown that it represents neither of the suggested species, but is actually V. sedula var. darwinii Moldenke.

The Hodge 6237, distributed as V. carolina, is actually V. hayekii Moldenke, while Bunting & Licht 976, Díaz Luna 460, and Tyson, Dwyer, & Blum 4300 are V. litoralis H.B.K.

Additional citations: ARIZONA: Santa Cruz Co.: Mason, Drouet, MacEwan, & Price 1808 (Mi). MEXICO: Chiapas: Breedlove 14430a (Mi). Federal District: Aguirre Z. 121 (Ip); Carrillo 42 (Ip); J. Espinosa s.n. [X.1954] (Ip); Fariás R. 89 (Ip); Gutiérrez & Molina s.n. [1.X.1967] (Ip); Islas F. s.n. [23/III/1962] (Ip); Jiménez R. 151 (Ip); S. López 89 (Mi); Márquez s.n. [23/VII/1962], in part (Ip); Rojano 18 (Ip), 83 (Ip); J. Rzedowski 1135 (Ip), 1226 (Ip). Guanajuato: R. McVaugh 24206 (Mi). Guerrero: Rowell 3061 (Mi). Hidalgo: González Quintero 1207 (Ip). Jalisco: Díaz Luna 209 (Mi); Harker & Mellowes 35 (Ip, Mi). México: Armenta 28 (Ac); Franco R. s.n. [20.VIII.1967], in part (Ip); González Quintero 1178 (Ip); Pineda R. 359 (Rf); Ryesky 101 (Ws), 102 (Ws); J. Rzedowski 20284 (Rf); Salinas M. 85 (Ac); Villegas D. 76 (Ip). Michoacán: Bautista s.n. [13/VIII/1967] (Ip); García Romero s.n. [11.VIII.1968], in part (Ip); Hinton 13022 (Se--117448). Morelos: Flores Crespo 45 (Rf), 293 (Ac); Guerrero O. s.n. [14/IX/1962] (Ip); H. Hernández s.n. [12/VII/1965] (Ac). Nuevo León: Barkley & Alanís 41012 (Go, Rf). Oaxaca: J. Rzedowski 20988 (Ac); C. L. Smith 224 (Ip). Puebla: González Quintero 180 (Ip). Sinaloa: Breedlove & Kawahara 16887 (Rf). Sonora: Pennington 215, in part (Au--264202). Tamaulipas: R. Ruryon 884 (Au--268204). Veracruz: Martínez Calderón 1765 (Rf). GUATEMALA: Quezaltenango: Roe, Roe, & Mori 678 (Rf). HONDURAS: Copán: F. A. Barkley 40267 (Rf). EL SALVADOR: San Salvador: C. García 135 (Ca--1284417).

VERBENA CAROLINA f. ALBIFLORA Moldenke

Additional bibliography: Hocking, Excerpt. Bot. A.13: 570 & 571. 1968; Moldenke, Résumé Suppl. 16: 2. 1968; Moldenke, Phytologia 16: 88. 1968; Moldenke, Biol. Abstr. 49: 3252. 1968; Moldenke, Fifth Summ. 1: 75, 81, 84, & 85 (1971) and 2: 674, 688, & 913. 1971.

Recent collectors have encountered this plant in villages and at the edge of deciduous woods, flowering and fruiting in May. Material has been misidentified and distributed in some herbaria

as V. officinalis L.

Additional citations: MEXICO: Veracruz: Gutiérrez R. 342 (Rf).
GUATEMALA: El Quiché: E. Contreras 5247 (W--2558708).

VERBENA CATHARINAE Moldenke

Synonymy: Verbena catharinensis Moldenke, Fifth Summ. 2: 661, in syn. 1971.

Additional bibliography: Angely, Fl. Anal. Paran., ed. 1, 571. 1965; Moldenke, Phytologia 11: 451--452. 1965; Moldenke, Fifth Summ. 1: 177 (1971) and 2: 661 & 913. 1971.

Hatschbach describes this plant as creeping and rooting, the corollas violet or intensely lilac in color, blooming in October.

Additional citations: BRAZIL: Paraná: Hatschbach 14968 (M1), 22644 (M1, N).

VERBENA CHACENSIS Moldenke

Additional bibliography: Moldenke, Phytologia 10: 101. 1964; Moldenke, Fifth Summ. 1: 187 (1971) and 2: 913. 1971.

VERBENA CHEITMANIANA Moldenke

Synonymy: Glandularia cheitmaniana Schnack & Rubens, Bol. Soc. Argent. Bot. 13: 205, hyponym. 1970.

Additional bibliography: Moldenke, Phytologia 13: 188. 1966; Schnack & Rubens, Bol. Soc. Argent. Bot. 13: 205. 1970; Moldenke, Fifth Summ. 1: 200 & 370 (1971) and 2: 913. 1971.

The Ritchie specimen cited below is a mixture with V. rigida Spreng. It is accompanied by a longhand label which I am unable to decipher, but which appears to be only a diagnostic description of the plants. There does not seem to be any indication that the specimens were taken from wild plants, so I assume that they were cultivated where collected.

Additional citations: CULTIVATED: India: C. Ritchie 57, in part (Ed).

VERBENA CHILENSIS Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 78. 1942.

Additional bibliography: Moldenke, Phytologia 16: 88. 1968; Moldenke, Fifth Summ. 1: 200 (1971) and 2: 671, 776, & 913. 1971.

Bartlett found this plant growing on a mountain ridge above the barrel cactus zone.

Additional citations: ARGENTINA: Mendoza: H. H. Bartlett 19410 (Au--195085, N). Neuquen: O'Donell 2008 (N).

VERBENA CILIATA Benth.

Additional synonymy: Verbena cilliata Benth. ex Moldenke, Résumé Suppl. 18: 14, in syn. 1969. Verbina ciliata Benth. ex Moldenke, Fifth Summ. 2: 708, in syn. 1971.

Additional & emended bibliography: Rydb., Fl. Rocky Mtns., ed. 2, pr. 1, 739 & 740 (1922) and ed. 2, pr. 2, 739 & 740. 1954; Howell & McClintock in Kearney & Peebles, Ariz. Fl., ed. 2, 725 & 727. 1960; Martin & Barkley, Seed Ident. Man. 194. 1961; Turrill

in Curtis, Bot. Mag. 174: pl. 409. 1963; Hocking, Excerpt. Bot. A.6: 91. 1963; Marroquin, Cuad. Inst. Invest. Cient. 14: 30 & 56. 1968; Moldenke, Phytologia 16: 186 & 196. 1968; Moldenke, Résumé Suppl. 17: 2 (1968) and 18: 14. 1969; Gilbertson & McHenry, Univ. Ariz. Agr. Exp. Sta. Tech. Bull. 186: 7 & 39. 1969; Hafez & Younis, Physiol. Pl. 22: 332. 1969; Kapp, How to Know Pollen 104, 135, 231, & 249, fig. 208 & 276. 1969; Rydb., Fl. Rocky Mtns., ed. 2, pr. 3, 739 & 740. 1969; Rickett, Wild Fls. U. S. 3 (2): [361] & 362, pl. 109 (1969) and 4: 539, [541], & 799, pl. 176. 1970; Jarrett, Ariz. Highways 47 (8): [11] & 38. 1971; Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1317 & 1325. 1970; Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1799, 1876, & 1877. 1970; Moldenke, Fifth Summ. 1: 39, 42, 53, 58, 61, 63, 65, 75, 78, 81, & 370 (1971) and 2: 659, 663, 667, 708, 767, & 913. 1971; Moldenke, Phytologia 22: 461, 462, 473, & 497. 1972.

Additional illustrations: Rickett, Wild Fls. U. S. 3 (2): [361], pl. 109 (in color) (1969) and 4: [541], pl. 176 (in color). 1970; Jarrett, Ariz. Highways 47 (8): [11] (in color). 1971.

The seeds of this plant are said by Martin & Barkley (1961) to be compressed-oblong and slightly rounded-triangular in cross-section, making them somewhat 2-sided, the rounded back bearing lengthwise ridges toward the lower end and a network of cross-ridges below, the inner face of the two planes meeting in a low ridge, the surface generally covered with whitish papillae, the margin bordered by a narrow flange, the attachment-scar whitish and surrounded by a cuplike extension, the entire seed 1.5—3 mm. long, with no endosperm.

Recent collectors have found this species growing on dry plains and mesas, dry desert plains, flat dry plains, and low banks near water, among large rocks, along dry roadsides, in xerophytic matorral, "pastizales", "zacatal", matorral with Opuntia, maize fields, and Quercus-Cupressus woods, in openings in pine forests, subalpine meadows, Prosopis-Larrea scrub, dry level rocky grasslands, open stony roadside pastures, and matorral roadsides, in sandy, volcanic, or rocky limestone soil. In addition to the months previously recorded, it has been found in anthesis in January.

The Andersons found V. ciliata "locally common in small barrancas with vegetation of shrubs, cacti, and a few small trees, with limestone rocks, in Puebla and among shrubby vegetation in arroyos, abundant by roads, in Guanajuato; García Saucedo found it in xerophilous matorral with Opuntia and Agave in Hidalgo; while Stuessy encountered only "one clump about 4 feet in diameter in Acacia grassland in Chihuahua. Cruz Cisneros found it on "ladera andesítica con vegetación de pastizal con Quercus, Opuntia y Leguminosae", "ladera andesítica con vegetación xerófita", and "ladera basáltica con vegetación de matorral de Acacia y Opuntia".

The corollas are described as having been "lilac" on Asteinzas n. [5.VII.1966], Ifiguez 74, and Villegas D. 388, "blue" on Pi-

neda R. 348, "violet" on Latotre s.n. [12 May 1968], "lavender-purple" on Dieterle 3575, "lavender" on Anderson & Anderson 5048 and Anderson & Laskowski 3548, "blue-purple" on Stuessy 959, "reddish" on McGregor 16626, "pinkish-purple" on Vilas 39, "reddish-violet" on Vilas 29, "lavender, turning rose-pink in press" on Anderson & Anderson 5314, and "purple" on Dominguez & McCart 8270, Galicia 17, García Saucedo 2607, Hidalgo & Anda s.n. [27.IV. 1967], Nevling & Gómez-Pompa 1075, Powell, Scudday, & Sikes 1434, J. Rzedowski 3051, 3428, 20301, 20543, 22205a, & 23895, and Ventura A. 1545.

Gilberson & McHenry (1969) report that this plant is attacked by both the pycnia and aecia stages of the fungus, Puccinia aristidae Tracy, in Yavapai County, Arizona. Marroquin (1968) cites Alanís 124, 258, & 278 (FCB 2490, 2491, & 2492) and Gutiérrez Lobatos 144 (FCB 1353) from Nuevo León, Mexico.

Mutis 1919, cited below, bears a printed label reading "PLANTS OF COLOMBIA", but the specimen was undoubtedly collected in Mexico. J. Rzedowski 22205a is a mixture with V. menthaefolia Benth. The color illustration purporting to represent V. ciliata in the Rickett publications (1969, 1970) seems definitely to be not this species.

Material of V. ciliata has been misidentified and distributed in herbaria under the names V. ambrosaeifolia Rydb. and V. microphylla H.B.K. On the other hand, the J. H. Ehlers 8367, distributed as V. ciliata, is actually V. ambrosifolia Rydb.; Demaree 41126, Hinton & al. 17130, and Mears & Mears 1815 are V. ambrosifolia f. eglandulosa Perry; Hargrove & Tilton HT.500677 is V. bipinnatifida Nutt.; Hargrove & Tilton HT.500652 is V. bracteata Lag. & Rodr.; Ramirez & Cárdenas 13 is V. ciliata var. longidentata Perry; Beasley & Finzel 851 is V. ciliata var. pubera (Greene) Perry; Atwood 1730, C. L. Hitchcock 25540 & 25614, and Munz, Johnson, & Harwood 4254 are V. gooddingii Briq.; Pinkava, Lewis, Noble, & Lehto 11249 is V. gooddingii var. nepetifolia Tidestr.; Pruitt 210 and B. C. Tharp 49-1118 are V. pumila Rydb.; and Barkley, Paxson, & Webster 2493, Rebolledo Vélez s.n. [20. VIII.1967], and J. Rzedowski 1009 are V. teucრიifolia Mart. & Gal.

Additional citations: MEXICO: Chihuahua: Stuessy 959 (Au--257767), 965 (Au--257701), 1014 (Au--257670). Coahuila: Johnson & Johnson 1649 (Ws); Latotre s.n. [12 May 1968] (Au--265045); Powell, Scudday, & Sikes 1434 (Au--257010). Durango: Anderson & Laskowski 3548 (Mi); Johnson & Johnson 1712 (Ws). Federal District: Bopp 214 (Ip). Guanajuato: Anderson & Anderson 5048 (Mi). Hidalgo: García Saucedo 2607 (Rf); González Quintero 349 (Au--241298); J. Rzedowski 16927 (Ip), 20543 (Ac), 23895 (Rf); S. Sánchez 37 (Ac). Jalisco: J. V. A. Dieterle 3575 (Mi); R. L. Mc

Gregor 16626 (N). México: Asteinza s.n. [5.VII.1966] (Ip); Cruz Cisneros 499 (Mi), 524 (Ip), 562 (Mi); E. R. García 60 (Rf); Hidalgo y Anda s.n. [27.IV.1967] (Ip); Iñiguez 74 (Ac); M. Padilla 117 (Ac); Pineda R. 348 (Rf); Rebolledo Vélez s.n. [20.VIII.1967] (Ip); J. Rzedowski 15678 (Ip), 20301 (Ip), 22205a, in part (Ip), 22206a (Ip); Vargas N. 49 (Rf); Villegas D. 368 (Ip), 388 (Ip). Nuevo León: Dominguez & McCart 8270 (Au--222192); L. Gilbert 63 (Au--252409); H. Hernández s.n. [21/V/1965] (Ip). Oaxaca: Vilas 29 (Ws), 39 (Ws). Puebla: Anderson & Anderson 5314 (Mi); Guerra M. 16 (Ac); Long & Burch 3321 (N); Manning & Manning 53719 (Au--234068); Ventura A. 1545 (Mi). San Luis Potosí: J. Rzedowski 3051 (Ip), 3428 (Ip). Tamaulipas: Serna 34 (Lk). Tlaxcala: Galicia 17 (Ip--2264, Ip). Veracruz: Nevling & Gómez-Pompa 1075 (G). State undetermined: Mutis 1919 (W--1562721); Schnée s.n. [VII--XII] (Mi).

VERBENA CILIATA var. LONGIDENTATA Perry

Additional synonymy: Verbena ciliata longidentata Perry apud Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1876. 1970.

Additional bibliography: Moldenke, Phytologia 16: 88. 1968; Kapp, How Know Pollen 104, 135, & 231, fig. 208 & 276. 1969; Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1217 & 1325. 1970; Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1876. 1970; Moldenke, Fifth Summ. 1: 58, 62, & 75 (1971) and 2: 663 & 913. 1971; Moldenke, Phytologia 22: 462, 473, & 497. 1972.

Additional illustrations: Kapp, How Know Pollen 104 & 135, fig. 208 & 276. 1969.

Rurion describes this plant as an annual, 1 foot tall, its leaves petiolate or subsessile, cuneate-lanceolate in outline, deeply incised or lobed and dissected, the bark green, the roots fibrous, the flowers odorless, and the fruit a "cylindric capsule" [it is actually a schizocarp]. It has been collected at altitudes from sealevel to 2400 feet. In addition to the months previously reported, it has been collected in anthesis and fruit in January and September. The corollas are described as "blue" on R. Rurion 2497, "violet-purple" on R. Rurion 2361, "rose-purple" on R. Rurion 2495, and "purple" on B. Hutchins 318, C. L. Lundell 10656, and R. Rurion 1576 & 1577. Recent collectors have found it growing in black heavy soil, sandy soil over limestone, and sand along roadsides. Hutchins found it "in calcareous clay loam of barditch" and his specimen is accompanied by a photograph of the plant in situ. Cory found it to be "infrequent in grassland of roadsides" in San Patricio County, Texas. Rurion avers that it blooms from February to April in Cameron County, where it is "a very common verbena covering large patches and producing flowers in abundance, forming large patches in early spring", although for his no. 2495 he notes "occasional in open ground".

Cumbie 53 bears a notation that it is a voucher for anatomical studies; it was misidentified as V. bipinnatifida Nutt., so the anatomical studies, if they have been published, are probably incorrectly said to refer to that species.

Material of V. ciliata var. longidentata has also been misidentified and distributed in some herbaria under the names V. ambrosiifolia eglandulosa Perry and V. cloveri var. lilacina Moldenke. On the other hand, the Demaree 7685, distributed as V. ciliata var. longidentata, seems to be var. pubera (Greene) Perry instead.

Additional citations: TEXAS: Bexar Co.: McCullough 6 (N). Cameron Co.: C. L. Lundell 10656 (N); R. Runyon 1576 (Au--269653), 1577 (Au--269654), 2361 (Au--268823), 2495 (Au--268726, Au--269652, N, N), 2497 (Au--268720). Fayette Co.: Ripple 51-580 (Au--226865). Garza Co.: B. Hutchins 319 (Lk). Kent Co.: Cumbie 53 (Lk). Kinney Co.: Strother 263 (Au--238209). San Patricio Co.: Cory 51256 (Mi). Webb Co.: Barrera & Laurel 59 (Lk). Wichita Co.: Whitehouse 9513 (N). Zapata Co.: Novoa & Cantu 18a (Au--245164, Ip). Zavala Co.: Ramirez & Cardenas 13 (Au--245214). MEXICO: Coahuila: G. A. Voss 486 (Sd--63759).

VERBENA CILIATA var. PUBERA (Greene) Perry

Additional bibliography: Howell & McClintock in Kearney & Peebles, Ariz. Fl., ed. 2, 727. 1960; Moldenke, Phytologia 16: 88-89. 1968; Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1317 & 1325. 1970; Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1876. 1970; Moldenke, Fifth Summ. 1: 51, 58, 62, 63, & 65 (1971) and 2: 522, 663, 691, & 913. 1971.

Recent collectors have found this plant growing in rocky sandy loam, shallow alkaline soil, gravelly sand of Acacia-Yucca-grass communities, and along railroad tracks. Howell & McClintock (1960) describe the plant as "more prostrate and compact and more revolute leaf margins" and maintain that it is found "throughout the range of the species" in Arizona.

The M. Winter 61, distributed as V. ciliata var. pubera, is actually V. pumila Rydb.

Additional citations: TEXAS: Bailey Co.: Rosson 506c (Lk). Garza Co.: B. Jensen 8 (Au--24801). Jeff Davis Co.: Small & Wherry 12072 (Id). Lubbock Co.: Demaree 7685 (Lk). ARIZONA: Santa Cruz Co.: Beasley & Finzel 851 (N).

VERBENA CLAVATA Ruiz & Pav.

Additional synonymy: Verbena clvaara Ruiz & Pav. apud Pers., Sp. Pl. 3: 346, sphalm. 1819.

Additional bibliography: Pers., Sp. Pl. 3: 346. 1819; Steud., Nom. Bot. Phan., ed. 1, 873. 1821; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 613, 615, 617-618, 621, & 625. 1960; Moldenke, Phytologia 16: 49. 1968; Moldenke, Résumé Suppl. 16: 28. 1968; Mol-

denke, Fifth Summ. 1: 143 & 192 (1971) and 2: 621, 658, 663, 668, 701, & 913. 1971.

Macbride (1960) keeps V. calcicola Walp. separate from V. clavata Ruiz & Pav., with V. gynobasis Wedd. as a synonym of the former. In his discussion of V. calcicola he says "Included by Schauer in V. clavata R. & P. and conceivably it may be an ecological condition". He cites for it Field Mus. neg. 17409, as well as Gay s.n. from Cuzco, Meyen s.n. and Weberbauer 1455 from Arequipa, and Weberbauer 7464 and Weddell s.n. from Moquegua. For V. clavata he cites Ferreyra 8031, Goodspeed 9184, and Sandeman 4611 from Ancash, Eyerdam 25159, Goodspeed Exped. 15719, Isern 2477, and Mexia 04170 from Arequipa, Isern 2478 from Moquegua, and Metcalf 30374 from Tacna, and says that it occurs also in Chile. I regard the Ferreyra and Mexia collections as var. casmensis Moldenke.

Macbride also attempts to keep V. fissa Hayek as a separate entity, citing for it the following collections: PERU: Ancash: Raimondi s.n. [Hualas]; Weberbauer 2768 (type). Arequipa: Ferreyra 5554; Guenther & Buchtien 133 & 133a; I. M. Johnston 3560; Weberbauer 389. Tacna: Metcalf 30374 [also cited by him as V. clavata]; Weberbauer 7385. He comments: "Near V. thymoides Cham. but more depressed, more densely pubescent, larger flowers; as V. calcicola Walp., cited as a synonym in Index Kewensis, may also prove to be a variant of V. clavata R. & P. as suggested by Johnston. About 3 dm. tall, flowers white or pink, on middle and lower green slopes (Johnston)...F. M. Neg. 17416." He attempts to separate the three supposed species as follows in his key:

Leaves closely canescent strigillose-hispidulous.....V. calcicola
 Leaves more or less canescent hirsute-villous-strigose.....V. clavata
 Leaves lightly hispidulous, greenish.....V. fissa

Additional citations: PERU: Arequipa: Vargas Calderón 18089 (Ac).

VERBENA CLAVATA f. ALBIFLORA Moldenke

Additional bibliography: J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 618. 1960; Moldenke, Phytologia 11: 453. 1965; Moldenke, Fifth Summ. 1: 143 (1971) and 2: 913. 1971.

VERBENA CLAVATA var. CASMENSIS Moldenke

Additional bibliography: J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 618. 1960; Moldenke, Phytologia 11: 453. 1965; Moldenke, Fifth Summ. 1: 143 (1971) and 2: 913. 1971.

Macbride (1960) says of this variety: "Var. casmensis...has scarcely revolute leaves mostly drying blackish, about 3 mm. wide, with short unevenly spreading twisted trichomes both sides; flowers lilac, fragrant. Leaves resemble those of V. trifida; spreading pubescence differs from both plants."

xVERBENA CLEMENSORUM Moldenke

Synonymy: Verbena clemensorum Moldenke apud Howell, Wasmann Journ. Biol. 10: 377. 1952. Verbena officinalis L. x V. robusta Greene ex Moldenke, Résumé 371, in syn. 1959. Verbena robusta Greene x V. officinalis L. ex Moldenke, Résumé 373, in syn. 1959.

Additional bibliography: Moldenke, Phytologia 11: 453—454. 1965; Munz, Suppl. Calif. Fl. 101. 1968; Moldenke, Fifth Summ. 1: 65 (1971) and 2: 686, 693, & 913. 1971.

Munz (1968) says "V. Clemensorum Moldenke described as possible hybrid between V. officinalis and V. robusta, from Jackson, Amador Co. Coarse herb with glabrous stems, stiff ovate incised lvs. 2.5-8 cm. long; infl. spicate, compound, ± puberulent, elongate; corolla 2 mm. wide."

VERBENA CLOVERAE Moldenke

Additional bibliography: Hocking, Excerpt. Bot. A.6: 91. 1963; Moldenke, Phytologia 16: 186. 1968; Moldenke, Résumé Suppl. 16: 2. 1968; Rickett, Wild Fls. U. S. 3 (2): 365. 1969; Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1315, 1316, & 1321. 1970; Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1876 & 1877. 1970; Moldenke, Fifth Summ. 1: 58 & 75 (1971) and 2: 663, 685, 774, & 913. 1971.

Recent collectors have found this plant growing in sandy soil, sandy silt, red sand, or light brown sandy loam, on clay and gravel hills, and along roadsides. Wood reports that it "covers large areas [in Starr County, Texas], common, very similar to no. 692 but flowers twice as large and very showy". Drawe found it "abundant on sandy loam soil in heavily grazed pastures" in Hidalgo County and Atwood in Opuntia-mesquite communities in Dimmit County, while Runyon describes it as having "leaves pinnately cleft, rugose, petiole winged, flowers with no odor, blooming from April to May.....a low herb apparently with perennial roots". Pladeck states that it has "perennial rootstocks". The corolla color is given as "blue" on Drawe 296, R. Runyon 2611, and Stokes 19, as "brilliant blue" on Pladeck s.n. [May 5, 1940], and as "lavender to blue" on A. D. Wood 693. R. Runyon 4869 is a mixture with V. plicata Greene.

Material of V. cloverae has been misidentified and distributed in some herbaria as V. neomexicana var. hirtella Perry and V. scabra Vahl. On the other hand, the Novoa & Cantu 18a, distributed as V. cloverae, is actually V. ciliata var. longidentata Perry.

Additional citations: Brooks Co.: Pladeck s.n. [May 5, 1940] (Ws). Dimmit Co.: Atwood 2035 (N). Edwards Co.: H. R. Reed 47 (Mi). Hidalgo Co.: Drawe 296 (Lk); R. Runyon 2611 (Au--268731), 4869, in part (Au--269729). Jim Hogg Co.: R. Bruno 41 (Lk); Sosa 332 (Lk). Kleberg Co.: F. B. Jones 2977 (Lk). La Salle Co.: Alvarez, Guajardo, Salazar, & McCart 7614 (Lk); F. A. Barkley 17078 (Ip); A. Castro 55 (Lk). Starr Co.: Ramos & Murillo 52 (Au); R.

Runyon 4885 (Au--266150); A. D. Wood 693 (Au--247078, Au). Webb Co.: Abrigo s.n. [April 12, 1963] (Au--219722); McCart 7289 (Mi); R. L. McGregor 16764 (N); J. Stokes 19 (Lk). Zapata Co.: Flores & Powell 112 (Lk); M. Gonzalez 5 (Au--245139, Ip). Zavala Co.: Guerra, Garcia, & Garcia 40 (Au--244879).

VERBENA CLOVERAE f. ALBA Lundell

Synonymy: Verbena cloverae alba Lundell apud Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1876. 1970.

Additional bibliography: Moldenke, Phytologia 16: 49. 1968; Moldenke, Résumé Suppl. 16: 2. 1968; Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1315, 1316, & 1321. 1970; Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1876. 1970; Moldenke, Fifth Summ. 1: 58 (1971) and 2: 663 & 913. 1971.

This form has been found in flower and fruit in May.

Additional citations: TEXAS: Dimmit Co.: Tharp & York 27 (Ip).

VERBENA COCCINEA Raf.

Additional bibliography: Moldenke, Phytologia 10: 102--103. 1964; Moldenke, Fifth Summ. 1: 66 (1971) and 2: 793 & 913. 1971.

VERBENA COCHABAMBENSIS Moldenke

Additional bibliography: Moldenke, Phytologia 16: 49. 1968; Moldenke, Fifth Summ. 1: 184 (1971) and 2: 684 & 913. 1971.

VERBENA COMONDUENSIS Moldenke

Bibliography: Moldenke, Phytologia 18: 343--344. 1969; Moldenke, Biol. Abstr. 50: 12948. 1969; Hocking, Excerpt. Bot. A. 18: 444. 1971; Moldenke, Fifth Summ. 1: 75 (1971) and 2: 913. 1971.

My wife, my son, and I visited the type locality of this species last year and find that it makes a very conspicuous show as it grows in masses in wet sandy depressions in roadside flats for several miles in the type area.

Citations: MEXICO: Baja California: Moldenke & Moldenke 2922 (Z-type), 25407 (Ac, Ft, Rf, Z).

xVERBENA CONATA Moldenke

Synonymy: Verbena halei Small x V. officinalis L. ex Moldenke, Résumé 365, in syn. 1959. Verbena officinalis L. x V. halei Small ex Moldenke, Résumé 371, in syn. 1959.

Additional bibliography: Hocking, Excerpt. Bot. A. 1: 430. 1959; Moldenke, Phytologia 11: 454. 1965; Moldenke, Fifth Summ. 1: 370 (1971) and 2: 649, 672, 686, & 913. 1971.

VERBENA CONCEPCIONIS Moldenke

Additional bibliography: Moldenke, Phytologia 9: 201. 1963; Moldenke, Fifth Summ. 1: 192 (1971) and 2: 913. 1971.

xVERBENA CORRUPTA Moldenke

Additional synonymy: Verbena peruviana (L.) Britton x V. phlogi-

flora Cham. ex Moldenke, Résumé 372, in syn. 1959. Verbena phlogiflora Cham. x V. peruviana (L.) Britton ex Moldenke, Résumé 372, in syn. 1959.

Additional bibliography: Moldenke, Phytologia 16: 89 & 93. 1968; Moldenke, Résumé Suppl. 16: 28. 1968; Moldenke, Fifth Summ. 1: 370 (1971) and 2: 522, 689, & 913. 1971.

It appears that the cultivars known as "Defiance" (Hurst; Vaughan's; Waller-Franklin; Withamfogg), "Defiance Re-selected" (Watkins & Simpson), "Défiance" (Haage & Schmidt), and "Défiance Purpurea" (Haage & Schmidt) all belong to xV. corrupta rather than to xV. hybrida Voss as previously reported by me. "Defiance" is described as spreading, 12--16 inches tall, blooming in early July (in the U. S. A.), the flowers 1/2 inch wide, rich-scarlet or red with a small creamy-white "eye". Haage & Schmidt describe "Défiance" as "feuer scharlach" [fiery-scarlet] and "Défiance Purpurea" as "purpurroth" [purple-red] in color of corolla.

VERBENA CORYMBOSA Ruiz & Pav.

Additional & emended bibliography: Pers., Sp. Pl. 3: 347. 1819; Steud., Nom. Bot. Phan., ed. 1, 873. 1821; Reiche & Phil., Fl. Chil. 5: 283 & 285. 1910; Angely, Fl. Anal. Paran., ed. 1, 571. 1965; Yotaro, Gard. Pl. World 1: 131. 1965; Moldenke, Phytologia 16: 49--50. 1968; Coats, Pl. Hunters 376. 1969; Heusser, Pollen & Spores Chile 62 & 78. 1971; Moldenke, Fifth Summ. 1: 143, 177, 189, 192, & 370 (1971) and 2: 652, 688, 736, & 914. 1971.

The corollas of this plant are described as "blue-violet" on Burkart 19986. Heusser (1971) says that the pollen has "a tendency to occur chiefly as a pericolpate or pericolporate type with apertures associated with the contact edges of the faces; 41--79 μ ", based on a collection by J. Gallardo (SGO 66315), no locality of collection designated. He gives the distribution of the species in Chile as "Atacama--Valdivia" and compares its pollen grains with those of Junellia uniflora (R. A. Phil.) Moldenke, which are syncolporate. He does not specify if he does or does not regard this as sufficiently important to be a generic character.

Coats (1969) reminds us that Elliott & Comber, during their second Chilean trip in 1929--1930, collected for eventual introduction into the horticultural trade the "hardy Verbena corymbosa".

Additional citations: BRAZIL: Santa Catarina: Smith & Klein 13460 (N). URUGUAY: Burkart 19986 (N, W--2595165).

xVERBENA COVASII Moldenke

Additional synonymy: Verbena santiaguensis (Covas & Schnack) Moldenke x V. tenuisecta Briq. ex Moldenke, Résumé 373, in syn. 1959. Verbena tenuisecta Briq. x V. santiaguensis (Covas & Schnack) Moldenke, Résumé 376, in syn. 1959.

Additional & emended bibliography: J. A. Clark, Card Ind. Gen. Sp. Var. issue 191. 1945; Schnack & Covas, Revist. Argent. Agron. 12: 224 & 228. 1945; Moldenke, Phytologia 11: 454. 1965; Moldenke,

Fifth Summ. 1: 370 (1971) and 2: 522, 694, 700, & 914. 1971.

VERBENA CRITHMIFOLIA Gill. & Hook.

Additional synonymy: Verbena crithmifolia Gill. & Hook. apud Beetle, Bot. Rev. 9: 670, sphalm. 1943. Glondularia erithnifolia Gill. & Hook. ex Moldenke, Fifth Summ. 2: 523, in syn. 1971.

Additional bibliography: Autran, Trab. Mus. Farmac. Fac. Cienc. Méd. Buenos Aires 13: 33. 1907; Frénguelli & Cabrera, Rev. Mus. La Plata, n. ser., sec. ofic., 1938: 77. 1939; J. A. Clark, Card Ind. Gen. Sp. Var. issue 183. 1944; Troncoso in Böcher, Hjerting, & Rahn, Dansk Bot. Arkiv. 22 (1): 109. 1963; Troncoso in Cabrera, Fl. Prov. Buenos Aires 5: 137. 1965; Moldenke, Phytologia 16: 186. 1968; Moldenke, Résumé Suppl. 16: 28. 1968; Moldenke, Fifth Summ. 1: 137, 192, & 200 (1971) and 2: 521, 523, 534, 664, 665, 668, & 914. 1971.

Collectors have found this plant growing in dry alkaline soil and in riverbeds, fruiting in April, September, and November (in addition to the months previously reported). Semper 117 bears a label stating that the plant was "rare" where collected (in Mendoza, Argentina), although this same collector reports it as "abundant" in other parts of the same province on other labels. The corollas are said to have been "lilac" on Semper 117, "pinkish-white" on Semper 585 & 616, and "lilac-white" on Semper 65.

Troncoso (1965) comments that "Todas las citas de V. crithmifolia.....dadas para la Provincia [Buenos Aires] deben referirse a esta especie [V. hookeriana]."

The Eyerdam, Beetle, & Grondona 23443, distributed as V. crithmifolia, is actually V. hookeriana (Covas & Schnack) Moldenke.

Additional citations: ARGENTINA: Mendoza: Lourteig 894 [Herb. Inst. Miguel Lillo 113935] (N), 925 [Herb. Inst. Miguel Lillo 114040] (N); Semper 7 (N, S), 22 (N), 65 (N), 117 (N), 439 (N), 585 (N), 616 (N). Río Negro: O'Donell 1844 (N).

xVERBENA CROOKSHANKSI Moldenke

Synonymy: Verbena bracteosa x hastata Rydb., Fl. Rocky Mtns., ed. 2, pr. 1, 740. 1922. Verbena bracteata Lag. & Rodr. x V. hastata L. ex Moldenke, Fifth Summ. 2: 656, in syn. 1971. Verbena hastata L. x V. bracteata Lag. & Rodr. ex Moldenke, Fifth Summ. 2: 673, in syn. 1971.

Bibliography: Rydb., Fl. Rocky Mtns., ed. 1, 740 (1917), ed. 2, pr. 1, 740 (1922), ed. 2, pr. 2, 740 (1954), and ed. 2, pr. 3, 740. 1969; Moldenke, Fifth Summ. 2: 656, 673, 914, & 967. 1971.

Rydberg (1917) describes this hybrid as "Resembling most V. bracteosa in habit, but stouter, more erect, with broad, laciniate rather stout dissected leaves and shorter bracts. Neb.—Colo."

VERBENA CUNEIFOLIA Ruiz & Pav.

Additional bibliography: Pers., Sp. Pl. 3: 346. 1819; Steud., Nom. Bot. Phan., ed. 1, 873. 1821; Reiche & Phil., Fl. Chil. 5:

287. 1910; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 614 & 619. 1960; Moldenke, Phytologia 16: 50. 1968; Moldenke, Fifth Summ. 1: 143 & 192 (1971) and 2: 665, 701, & 914. 1971.

Vargas Calderón found this species in flower and fruit in October. Macbride (1960) cites Field Mus. neg. 17411 and the following specimens: PERU: Ancash: Raimondi s.n. [Pomabamba, Huaraz], Weberbauer 3060. Cuzco: Herrera 1409. Huancavelica: Raimondi s.n. [Tayacaya]. Huánuco: Macbride & Featherstone 1210. Junín: Soukup 3537 & 3970, Stork 10920. San Martín: Ruiz & Pavon s.n. [Moyobamba], type.

Additional citations: PERU: Ancash: Vargas Calderón 10320 (Ac).

VERBENA CURTISII Moldenke

Additional bibliography: Moldenke, Phytologia 10: 103. 1964; Moldenke, Fifth Summ. 1: 23 & 370 (1971) and 2: 793 & 914. 1971.

xVERBENA DEAMII Moldenke

Additional synonymy: Verbena bracteata Lag. & Rodr. x V. stricta Vent. ex Moldenke, Résumé 359, in syn. 1959. Verbena stricta Vent. x V. bracteata Lag. & Rodr. ex Moldenke, Résumé 375, in syn. 1959.

Additional bibliography: Rydb., Fl. Rocky Mtns., ed. 2, pr. 1, 740 (1922) and ed. 2, pr. 2, 740. 1954; Hitchc., Cronq., & Ownbey, Vasc. Pl. Pacif. Northwest 4: 244. 1959; Moldenke, Phytologia 16: 50. 1968; Moldenke, Résumé Suppl. 16: 1, 2, & 28. 1968; Rydb., Fl. Rocky Mtns., ed. 2, pr. 3, 740. 1969; Moldenke, Fifth Summ. 1: 15, 34, 37, 40, 41, 43, 45, 51, & 53 (1971) and 2: 656, 657, 666, 697, 698, & 914. 1971.

Fell & Fuller found this hybrid growing along roadsides in Winnebago County, Illinois. Patterson notes that in Henderson County of the same state he found some plants procumbent, some ascending, and some erect -- which is to be expected of the hybrid, considering its parentage.

Additional citations: ILLINOIS: Henderson Co.: H. N. Patterson s.n. [Oquawka, July] (Pa, Pa, Pa). Winnebago Co.: Fell & Fuller 56-301 (Ws).

VERBENA DELICATULA Mart.

Additional bibliography: Moldenke, Phytologia 10: 104. 1964; Moldenke, Fifth Summ. 1: 75 (1971) and 2: 665 & 914. 1971.

VERBENA DELTICOLA Small

Additional bibliography: Hocking, Excerpt. Bot. A.6: 91. 1963; Moldenke, Phytologia 16: 186. 1968; Moldenke, Résumé Suppl. 16: 2. 1968; Rickett, Wild Fls. U. S. 3 (2): 364. 1969; Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1316, 1317, & 1322-1323. 1970; Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 1799, 1846, & 1876. 1970; Moldenke, Phytologia 22: 497. 1971; Moldenke, Fifth Summ. 1: 58 & 75 (1971) and 2: 665 & 914. 1971.

[to be continued]